

special technical features. "The expression 'special technical features' shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art." 37 CFR 1.475(a). The Examiner has found that Group I does not share special technical features with the other groups. Applicants respectfully traverse.

The invention is directed to the ASIC family of proton activated, amiloride-sensitive mammalian neuronal cationic channels. The molecular sequence of the human ASIC1 channel is shown in SEQ ID NO:2. The molecular sequence of the human ASIC2 is represented by the human MDEG channel and is shown in SEQ ID NO:3 and SEQ ID NO:6. The corresponding rat ASIC1 channel is shown by SEQ ID NO:1 and SEQ ID NO:4. The rat ASIC3, represented by rat DRASIC channel, is shown in SEQ ID NO:5. These are highly conserved sequences. For example the rat and human ASIC2 channels are 99% identical.

All of the channels claimed in the Application are activated by protons. Furthermore, all of the channels claimed in the Application are amiloride-sensitive. These special technical features, proton activation and amiloride sensitivity, are shared among the ASIC family, and these isolated ASIC family members represent an advance over the prior art.

We respectfully submit that the high homology between the members of the ASIC channels and the attending structural and functional homology are make the claims drawn to a single inventive concept.

It is noted that Group 1 contains claim 1, which under 37 CFR 1.475(d), shall be considered as the main invention of the claims. Claim 1 reads:

(1) Protein constituting a mammalian neuronal cationic channel that is sensitive to amiloride and activated by protons.

Furthermore, claim 2 specifically claims SEQ ID NO:1 or a functionally equivalent derivative, it is not limited to SEQ ID NO:1 alone. Functional equivalence is found in the other ASIC proteins. Applicants earnestly submit that all of the claims share the special technical features:

- (a) all involve neuronal channels
  - (1) all are mammalian
  - (2) all are cationic
- (b) all involve sensitivity to amiloride
- (c) all involve activation by protons

Applicants respectfully submit that the ASICs are not structurally different, but have high homology. Furthermore, the ASICs are not functionally different as they function as proton-activated, amiloride-sensitive neuronal cationic channels. These newly discovered channels, with the accompanying technical features represent an advance over what is known in the prior art.

The products and processes embodied in the claims demonstrate unity of invention pursuant to 37 CFR 1.475(b). Moreover, it is common practice in the United States to examine nucleic acid embodiments, amino acid embodiments and methods of using proteins in a single application. Applicants, therefore, urge that there is unity of invention, and request examination of all claims.

In the alternative, we urge the Examiner to consider that there are three basic types of ASIC channels claimed: ASIC1 (Claims 1-3 and 5), ASIC2 (Claims 1 and 4) and ASIC3 (Claims 1 and 6) and these should form the basis of three Groups of claims rather than thirteen. Should the Examiner agree with the proposition of the three groups, we urge the Examiner to consider that each group should include the claims to the nucleic acid sequence for the ASIC channel, the corresponding vector, the methods of transforming cells the transformed cells, methods of using the cells for screening of compounds capable of modulating the channel activity, and the anti-channel antibodies. This would lead to the Groups of claims as follows:

**Group I:** Claims 1-3, 5, 10-13, 15, and 17-25

**Group II:** Claims 1, 4, 10-11, 14, and 17-25

**Group III:** Claims 1, 6, 10-11, and 16-25

Of these, the Applicants would elect Group I (Claims 1-3, 5, 10-13, 15, and 17-25).

#### Conclusion

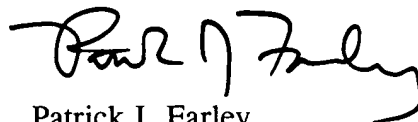
Applicants respectfully request reconsideration of the Requirement for Restriction. The Applicants submit that the claims should be examined in one application. In the alternative, the Applicants respectfully urge the Examiner to consider Claims 1-3, 5, 10-13, 15, and 17-25 in one application as drawn to ASIC1. Finally, in order to comply with the requirement of election of a single group, even though the requirement be traversed, the Applicants elect Group XI (Claims 22-23).

#### Review

Reconsideration and review of the Requirement for Restriction is respectfully requested by the Supervisory Patent Examiner, Paula Hutzell, Ph.D., and if necessary, by Richard Schwartz, Biotechnology Practice Specialist.

Applicants are appreciative of the review of this matter. Prompt consideration of the merits of all claims is respectfully requested.

Respectfully submitted,



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